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Foreign Loans by Multinational Banks: Evidence from Dutch Data

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Foreign Loans by Multinational Banks: Evidence from Dutch Data

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Abstract

The purpose of this paper is to examine the relationship between the foreign loan activity of multinational banks and their foreign representation. The investigation of this relationship is important because it shows that the activities of multinational banks cannot be described by an all-encompassing definition such as "international banking". The maturity structure of foreign bank loans was employed to disentangle two distinct areas of multinational bank activity and show that the two areas pose different requirements with respect to the presence of foreign bank representatives.

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1. Introduction

The rash of bad loans in Asia that has banks in Japan, Indonesia, Korea and Thailand reeling on the brink of insolvency and has put a dent into the balance sheets of many international banks once again shows that the greatest risk to banks is the default on loans. In the same context, in many countries there is a pent up interest in knowing what national banks do abroad. Given the security people wish to have with respect to their savings and other financial assets they often voice questions regarding the international lending of their home-country banks. Do they

lend to foreign banks or to foreign non-banking firms? Do they lend to other home-country firms abroad? In which countries? Rich or poor countries? What is the role of the foreign representatives in the placement of foreign loans?

Associated questions generate much of the controversy surrounding the theories of multinational banking. Williams (1997) suggests that multinational banks derive their advantage from the internalization of the information activities of the bank. The question that arises is whether this applies equally to the inter-bank and non-bank markets.

The purpose of this study is to answer some of these questions on the basis of the foreign loans made by Dutch banks. Although it would be ideal to have a study that would examine the behavior of the banks of many nationalities, such a study is not feasible due to the nonexistence of data.[1]

2. Methodology

In order to determine the strategy of banks in terms of lending to different countries and different sectors we concentrate on the maturity structure of foreign lending. Following Diamond (1991, 1993) who shows the preponderant role of borrowers in the determination of the maturity of loans, we take the maturity structure of bank loans to be an endogenous variable. Thus, we assume that even if a bank has an

[1] There are very few countries that present their bank claims on a country by country basis. Although the US and France also disaggregate some of their foreign claims data, the differences between the data sets do not allow for their simultaneous use. A comparison of the behavior of American, French and Dutch banks on the basis of the available, yet different data, is beyond the scope of this study.

overall strategy regarding the maturity of loans, this objective will not be binding in loans to particular countries and sectors. Then our approach is to explain the maturity structure of bank loans on the basis of the clients served: countries, banks or firms. Two equations designed to explain the amounts of short- and long-term lending by Dutch banks to 34 countries are estimated. We use the size variables for short- and long-term loans rather than the ratio of either short to long or short to total loans because our primary interest is the role of Dutch representatives abroad. A *priori* we may hypothesize that the assignment of representatives abroad is determined by both the level and the composition of loans. In the appendix we present an estimation on the ratio of short to long term loans for comparative purposes.

One of the key decisions of Dutch banks is the choice of the sector - bank or non-bank - to serve. In some countries Dutch banks will lead the pack in non-bank lending. In others the choice will be to concentrate on lending to banks. The choice will be reflected on the maturity of loans because banks borrow on shorter term than non-banks: "The amounts involved are large . . . Maturities are short, normally between overnight and six months . . . "[2] Although some of these very short loans might better be called "placement of excess funds" a review of the available statistics over time reveals that the volumes of short-term loans are growing fairly constantly over time.[3]

[2] BIS, 1983, p. 7.
[3] Please refer to the figures published *in De Nederlandsche Bank: Kwartaalbericht.*

In the explanation of Dutch short-term loans per country - Equation 1, at the end of this section - we should expect that total bank borrowing and total non-bank borrowing should exhibit a positive and a negative sign, respectively. In the equation for long term lending, Equation 2, the signs should be the reverse, except that for identification purposes we leave out bank borrowing in this equation.

Heinkel and Levi (1992), ter Wengel (1995), and Brealey and Kaplanis (1996) argue that bank representation abroad can be taken as an indicator of the business done by the banks of the home or exporting country in the host country. Here we propose to go one step further and examine the nature of the involvement of the banks in the host country. Thus we hypothesize that banks with representatives (branches, subsidiaries and representatives) in the host country will primarily engage in lending to non-banking firms while banks without branches would be typically lend to local banks. This would imply that bank representation should be positively related to maturity. Thus, the presence of Dutch banks would show a positive coefficient in the second equation.

At the same time it may be hypothesized that the presence of branches from other foreign banks will have a negative effect on the value of long term loans extended by Dutch banks. That is, other foreign banks will compete with the Dutch banks for business in the host country and the sign of the coeffkient for this variable should be negative in the second equation.

On the other hand we expect that Dutch banks with branches in a particular host country would not lend to the domestic banks with which they are competing. Thus, Dutch banks with representation in the host country would not register many short term loans. The anticipated sign for Dutch bank representation in the short term loan equation should be negative.

With respect to the presence of other nationality representatives it may be said that if Dutch banks are not servicing the short-term market as suggested in the previous paragraph, they would find no effect from the presence of other nationality representatives: the coefficient would not be different from zero.

Heinkel and Levi, ter Wengel, and Brealey and Kaplanis also explain international bank representation on the basis of: the economic size GNP) of the host country, the presence of other compatriot multinational enterprises in the host country, and on the participation of the host country in the OECD. Ter Wengel(1995) suggests that the development of the capital market, including the banking sector, is related to GNP. Therefore it might be expected that the effect of GNP on long-term loans by Dutch banks should be negative. The effect of GNP on short-term loans by Dutch banks is an empirical question: ***a priori*** it is impossible to say whether Dutch banks would fare better or worse in a country with a larger inter-bank market.

An often cited reason in the banking literature for banks to establish foreign representation is to service home clients abroad. On the basis of this reasoning we

should expect the presence of other Dutch enterprises to show a positive relation with long-term lending.

The Basle capital adequacy agreement requires banks to maintain a ratio of 8 percent capital to risk-weighted assets. In the calculation of risk-weighted assets non-financial companies anywhere in the world are applied a risk factor of 100 percent while loans to banks within the OECD are given a risk weight of only 20 percent.[4] Therefore banks would find it convenient to lend to OECD banks. Since inter-bank loans are usually short maturity, the coefficient for an OECD O-l dummy indicating OECD membership should have a positive coefficient in the first equation.

The model to be estimated is the following:

LSHORT=f(LBANK, LNOBNK, LNEDAG, LTOTAG, LGNP, MOECD) <1>

LLONG = g(LNOBNK,LNEDAG, LTOTAG, LGNP, LMNC) <2>

Where:

LSHORT - the logarithm of short-term loans (two years or less) by Dutch banks by country (34 destination countries);

LLONG - the logarithm of long-term loans by Dutch banks;

[4] *Handboek Wtk*, January 1998: 4011/4.

LNOBNK - the logarithm of total foreign bank loans obtained by the non-banking sector in the destination country from all other countries;

LBANK - the logarithm of total foreign bank loans to commercial banks in the destination country from all other countries;

LNEDAG - the logarithm of the number of Dutch banking representatives (branches, representatives, subsidiaries) in the destination country;

LTOTAG - the logarithm of the total of foreign bank representatives in the destination country;

LGNP - the logarithm of GNP of the destination country;

MOECD - dichotomous variable indicating membership in the OECD;

LMNC - the logarithm of the number of other Dutch multinationals in the destination country.

In Section 4 it is pointed out that Equations 1 and 2 are not independent and are estimated by means of three stage least squares. Further, since bank representation is probably related to the total amounts of loans outstanding, an instrumental variables procedure is employed to deal with the endogeneity of the regressor in the three stage analysis.

3. Data

Data on the activities of international banks disaggregated at the country level is very difficult to find. Thus, Heinkel and Levi, ter Wengel, and Brealey and Kaplanis employ bank representation as a proxy for bank activity or bank assets.

Fortunately, however, the Netherlands, the US and France publish some data on the claims of the consolidated banking sector vis-a-vis other countries. The Dutch central bank provides data on the maturity composition of loans disaggregated by country of destination. This data refers to loans made by banks from the Netherlands either directly or through their foreign representatives. The data do not include loans from the parent banks to their foreign representatives. Although the US *Treasury Bulletin* and *the Bulletin de la Barque de France* provide data on the total claims by US and French banks per country, the data are not broken down according to maturity. Therefore, an exploration of the strategies of banks can only be accomplished with the Dutch data.

The data on inter-bank loans and loans to non-bank enterprises by country of destination were obtained from the International Monetary Fund *International Financial Statistics.* The data on bank representation per country of destination were obtained from Reed Business Information: The *Banker's Almanac*. The term representation covers the sum of the number of branches, subsidiaries and representatives. A detailed description of this data base may be found in ter Wengel (1995).

The data on GNP and GNP per capita were derived from the World Bank, *World Tables*, and the IMF *International Financial Statistics.* The data on foreign subsidiaries of multinational corporations were derived from John M. Stopford The *World Directory of Multinational Enterprises.*

Because the data on international bank representation refer to 1990, the data employed for short- and long-term loans, and bank and non-bank lending, and GNP refer to 1990. The data on multinational enterprises refers to 1982-1983. With respect to the latter variable we think it would be highly desirable to get more up-to-date data.

4. Empirical results

As mentioned in Section 2 the two equations presented in that Section cannot be presumed to be independent: banks are known to set limits to their country exposure. Therefore the two equations are estimated simultaneously by means of a three-stage-least-squares procedure. Additionally, since the presence of a representative (branch, subsidiary or representative) could be the result as well as the cause of Dutch bank lending to a certain country, the presence of Dutch representatives in the host country was specified to be endogenous.

Because it appears reasonable to expect that the presence of Dutch representatives will be related to both the levels and the composition of lending, equations 1 and 2 are expressed in levels. A one equation two-stage-least-squares regression, not presented here, with the ratio of short- to long-term lending as the dependent variable produced basically the same results as the two-equation three stage estimation except that it did not provide any indication with respect to the importance of Dutch and other nationality representatives.

In spite of all the ***caveats*** that have to be made with respect to the measurement of fit statistics, we note that the means square error **(MSE)** and the weighted R-square indicate a fairly good fit. "The system weighted MSE and system weighted **R-**square measure the fit of the joint model obtained by stacking all the models together and performing a single regression with the stacked observations weighted by the inverse of the model error variances. "[5] It deserves to be noted that the good

[5] Sas Institute, ***SAS/ETS*** User's ***Guide,*** p. 824.

fit is not solely the result of the estimation in levels: the regression on the ratio of short- to long-term loans referred to above also presented a good fit.

Table 1 presents the results of the estimation designed to determine the pattern of foreign lending by Dutch banks. The regression estimates of equations 1 and 2 tend to corroborate the hypothesis that inter-bank banking has a short-term character while non-bank borrowers require longer term loans.

A comparison of equations 1 and 2 reveals that foreign representatives do not seem to be necessary to operate in the inter-bank market. In contrast, the allocation of long-term loans and the service of non-bank enterprises is positively related to the presence of Dutch branches, subsidiaries and representatives. At the same time the presence of representatives of banks with other nationalities lowers the value of the non-bank loans that Dutch banks are able to place. In the equation for short-term loans the variable for other nationality representatives had no explanatory power and was excluded.

Table 1. The pattern of foreign lending by Dutch banks

Dependent variable: LOANS-SHORT			
Variable	coefficient	standard error	Level of significance
INTERCEP	3.968	1.134	***
LNOBNK	0.179	0.222	
LBANK	0.406	0.125	***
LNEDAG	0.124	0.137	
LGNPJ	0.041	0.109	
MOECD	0.954	0.552	*
Dependent variable: LOANS-LONG			
Variable	coefficient	standard error	Level of significance
INTERCEP	4.878	1.811	***
LNOBNK	0.708	0.222	***
LNEDAG	0.380	0.195	*
LTOTAG	-0.485	0.235	**
LGNPJ	0.204	0.124	
LMNC	0.180	0.103	*

Levels of significance: *** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level

Three-Stage Least Squares Estimation
System Weighted MSE: 0.77465 with 56 degrees of freedom.
System Weighted R-Square: 0.7369

Even though the above findings are based on Dutch data, they throw light on the larger issue of multinational banking. Thus, Williams (1997) pointed out that multinational banking comprises both: participation in the Euromarkets; and, the provision of banking services in the host country by means of a representative.

Our results confirm the point made by Casson (1990) that multinational banking should not be considered as a homogeneous activity but rather as a series of distinct activities. Thus it appears that arms-length participation in the inter-bank market is very different from the provision of banking services through local representation. Only the latter form of multinational banking could be explained with the internalization theory, derived from the Coasian theory of the firm, examined by Williams.

The coefficients for income, measured as GNP did not prove to be significant at the 10 percent level. However, the GNP coefficient in the long-term loan equation was nearly significant (significant at the 15 percent level) and therefore the variable was not excluded from either equation.

The results with respect to OECD participation confirmed our hypothesis that banks would find it convenient to lend to OECD banks. Similarly the positive coefficient for the presence of compatriot multinational corporations suggests that banks may provide banking services for their home clients abroad.

4. Conclusions

The analysis of the patterns of foreign short- and long-term lending by Dutch banks confirms Casson's observation that "banking itself is not a homogeneous activity, but rather a collection of distinct though interdependent activities . . . "[6] It appears that the inter-bank and non-bank markets are distinct and serviced in different ways. Thus, the inter-bank market does not require the presence of representatives to collect information and disburse loans. On the other hand, because of the lower risk weight attached to loans to OECD banks, membership in the OECD seems to facilitate the placement of loans.

In contrast, foreign representatives are very important in the placement of long-term loans abroad and the presence of banking representatives of other nationalities makes it more difficult to place loans. Furthermore, multinational banks appear to service the banking needs of compatriot multinational enterprises.

The difference between the two markets served by international banks signifies that the internalization theory is only applicable to multinational banking carried out by means of an international network of representatives serving non-banking clients. This leaves two issues to be resolved:

1. What gives banks an advantage in the inter-bank market; and,
2. How do banks choose between the inter-bank and the non-bank markets.

[6] "Casson, 1990, p. 14.

6. References

Bank of International Settlements, 1983, The *International Interbank Market: A Descriptive Study,* (Basle: BIS Economic Papers No. 8,).

Brealey, R.A. and E.C. Kaplanis, 1996, "The Determination of Foreign Banking Location, " *Journal of Intemational Money and Finance* 15: 577-597.

Casson, M., 1990, "Evolution of Multinational Banks: a Theoretical Perspective," in G. Jones *Banks* as *Multinationals*, (London: Routledge Publishing), pp. 14-29.

De Nederlandsche Bank, 1991, *Kwartaalbericht*, September.

Diamond, Douglas W., 1991, "Debt Maturity Structure and Liquidity Risk," *Quarterly Journal of Economics 106: 709-737.*

Diamond, Douglas W., 1993, "Seniority and Maturity of Debt Contracts," *Journal of Financial Economics 33: 341-368.*

Handboek WTK (wet Toezicht Kredietwezen), 1998, January. (Handbook of Bank Supervision)

Heinkel, Robert L. and Maurice D. Levi, 1992, "The Structure of International Banking," *Journal of International Money and Finance 11: 25 1-272.*

International Monetary Fund, ***1997, International Financial Statistics, September CD-ROM.***

Reed Information Services, 1990, The ***Bankers' Almanac,*** (East Grinstead, England: Reed Information Services).

Stopford, John M., 1982, The ***World Directory of Multinational Enterprises: 1982-*** 1983, (London: Macmillan).

Ter Wengel, Jan, 1995, "International Trade in Banking Services," ***Journal of International Money and Finance 14:*** 47-64.

Williams, Barry, 1997, "Positive Theories of Multinational Banking: Eclectic Theory versus Internalization Theory," ***Journal of Economic Surveys*** 11: 71-100.